Women Lead Nuclear Negotiations

Whether at the negotiating table or behind the scenes, more technical women are playing visible and integral roles in nuclear negotiations.

Nuclear weapons negotiations — long a man's domain — have quietly become the province of women, with the American nuclear arms team directed by a female lead negotiator, her deputy, and the top two scientists, as well as women in senior posts in the Pentagon and White House.

Indeed, the nuclear negotiating chain of command extends from senior verification official Karin Look, who played a key role in dismantling Libya's nuclear weapons program, all the way up to Secretary of State Hillary Rodham Clinton, according to a story published Aug. 22 in *The Washington Post*.

Mona Dreicer, deputy program director for nonproliferation in the Global Security Principal Directorate, and part of a team that develops nonproliferation and arms control programs at Lawrence Livermore National Laboratory, said women with engineering, scientific, and technical backgrounds play integral roles in arms-control talks, even when they are not at the negotiating table.

Dreicer served as director of the Office of Nuclear Affairs at the State Department from February 2000 through July 2003, and played a key role in developing the U.S. government's arms control verification guidance and negotiation strategy for the Comprehensive Test Ban Treaty (CTBT). She held varying levels of responsibility in the test-ban treaty process, starting as a technical advisor as a part-time consultant, and ending up the chair of the committee that coordinated the technical verification policy for CTBT.

Communicating the technical aspects of policy

"I can remember standing in front of a meeting of mostly lawyers and economists, and presenting our results with 16 significant figures to illustrate how small certain impacts of nuclear energy were. The audience didn't know what to do with my table, and had to ask again and again about what it really meant," said Dreicer, recalling an incident from her work with a French research project on the social costs of energy production. "To me, the answer was obvious."

She found the same communication disconnect during her tenure as manager of a team that reported on the results of the Chernobyl nuclear plant meltdown for the International Atomic Energy Agency.

"I had to be able to communicate to a broad audience, including the people affected by the (disaster)," she said.

Dreicer learned to bridge the political and diplomatic divides as she advanced in her career, and added to her bachelor's of science degree in biology from McGill University by earning a master's of science in health physics and radioecology from Colorado State University and a Doctorate in Energy from Ecole Nationale Superiere des Mines de Paris/Centre d'Energetique, in Paris.

Dreicer said she would advise young women pursuing a science, technology, engineering, or mathematics degree to be aware that they must listen and strive to relate to audiences with no such background.

Rose Gottemoeller, Assistant Secretary of the State Department's Bureau of Verification, Compliance, and Implementation and chief negotiator to the Strategic Arms Reduction Treaty, or New START, had, in addition to a significant career in international affairs and national security, a long history of Russian-language history and culture, Dreicer said.

"(Gottemoeller) understands not just the foreign policy implications but how to deal one-on-one with her Russian counterpart," Dreicer said, pointing to a variety of programs and fields of study that can help young women exploring STEM careers to bridge the

In July, Secretary of State Hillary Clinton, center, posed with senior members of the U.S. delegation to the New START Negotiations and Nuclear Posture Review Department. Whitney Raas is standing next to Clinton, left.

Mona Dreicer has become adept at bridging technical, political, and diplomatic divides.

policy gap. Studying foreign languages, keeping current on international news, and participating in Expanding Your Horizons conferences, the Foreign Policy Initiative's Future Leaders program, or other career and summer internships, would help establish the necessary credentials. "You have to educate yourself, though a technical background certainly helps you know the questions to ask," she said. "The learning never stops."

Experience and education open up a technical role

Whitney Raas, a physical scientist in the State Department's Bureau of Verification, Compliance, and Implementation, personifies the ability of women today to set their sights on being a technical expert in a policy field.

Raas realized that she was keenly interested in nuclear-energy public policy when she took an American foreign policy class during her senior year at UCLA, where she earned a bachelor's with high honors in physics.

"I found that nuclear physics was the most exciting science," she said, noting that nuclear physics, particle physics, and quantum mechanics have major implications across an array of policy issues.

Raas started her career as a research analyst at the Center for Naval Analyses Corp., a federally funded think tank, in Alexandria, Va. While employed by the center, she spent five months in Afghanistan working with reconstruction and counter-insurgency teams. The experience strengthened her resolve to return to the nuclear-policy arena with a new realization of the importance of being able to translate technical information to colleagues with differing backgrounds.

"In defense areas like nuclear weapons and nonproliferation, you have to be able to understand policy and military issues, and talk about their concerns without offending anyone," Raas said.

Raas' realization prompted her to return to school to simultaneously earn a master's in political science and a Ph.D. in nuclear engineering from the Massachusetts Institute of Technology. She joined the State Department in August 2008 as a physical scientist, providing policy support on technical issues related to arms control, nonproliferation, and nuclear policy.

She has been excited to serve as a member of and advisor to the U.S. delegation to the eighth Nuclear Nonproliferation Treaty Review Conference, and to see her suggestions translated into policy as part of the Obama administration's April 6 release of its new Nuclear Posture Review, the policies that govern nuclear strategy.

Whitney Raas served as an advisor and member of the U.S. delegation to the eighth Nuclear Nonproliferation Treaty Review Conference.

Obama used the review to accelerate the administration's efforts to reduce nuclear arms and ultimately make nuclear weapons obsolete.

Raas appreciates the many female role models so prominent in today's State Department, and believes that their presence facilitates team building and a positive work environment.

As a young woman, she takes for granted that women play such key roles. "It has never been an anomaly to me to be a woman," she said, noting that her undergraduate physics class comprised 60 percent women students, and that her first lab at MIT consisted of four women and one man.

Pathways to senior positions

The Washington Post article also cited a survey by Women in International Security showing that women account for 21 to 29 percent of the senior positions at the State Department, the United States Agency for International Development (USAID), the Pentagon, and other national security and foreign policy agencies.

"If you show yourself to be capable and hard-working, you gain respect for being good at what you do, regardless of gender," Raas said. Echoing Dreicer, Raas advises others looking to follow a similar career path to pursue academic avenues with broad applications, to study humanities in addition to science, and learn a foreign language.

Eileen Vergino, deputy director for the Center for Global Security Research at the Lawrence Livermore National Laboratory, had the opposite experience from Raas.

Vergino, who is in her fifties, vividly remembers her sixth-grade teacher in Los Angeles telling her that it would be impossible for her to become a scientist.

Vergino ignored the advice and earned a bachelor's degree in geophysics at the Massachusetts Institute of Technology. Her 1973 incoming class comprised 20 percent women, a new high for female participation at that

time, and her graduating class in 1977 ended up with about 15 percent women. "I'd be the only woman in my geophysics classes," she said.

"My parents raised me to believe that I owe society and not that society owes me. I wanted to do something to contribute to the understanding of science and how to use science to help support U.S. national security," she continued.

Vergino is associate program leader for International Cooperation in the "E" program, in which she initiates

Scientist Eileen Vergino has made many contributions to national security.

international science and technology partnerships aimed at furthering U.S. non-proliferation goals. She was the primary science advisor, representing Lawrence Livermore with the U.S. State Department for International Science and Technology Centers and the Science and Technology Center of the Ukraine, in which she has helped spearhead community development efforts and set up a Sister City relationship between Livermore, Calif., and Snezhinsk, Russia.

In addition, Vergino also directed Lawrence Livermore's education and outreach programs for students and teachers from elementary grades through graduate degree programs.

Her research included improving ways to monitor and measure nuclear explosions through seismology, including a paper with the largest-known data set analyzed using regional wave-forms to estimate the size of nuclear explosions.

Vergino, who bikes 150 miles a week and runs half-marathons, gets excited just talking about how women "have changed the face of science."

Jane Wales, who negotiated numerous science and technology agreements during the Clinton administration, said the growing presence of women with technical expertise in the diplomatic arena "is a wonderful and welcome change" from her early career.

Wales, the most senior of the women interviewed, served as associate director for national security and international affairs in the White House Office of Science and Technology Policy, and as senior director for science and technology at the National Security Council during President Clinton's first term, from 1993-1996. She also served in the Carter administration, first as White House Coordinator of Public Liaison and then as Deputy Assistant Secretary of State during the tenures of Cyrus Vance and Edmund Muskie.

Currently serving as CEO of the World Affairs Council and as vice president of the Aspen Institute, Wales speaks passionately of the importance of STEM education.

"There is an ever-growing need for people with scientific training in the world of national security policy and foreign policy," she said. "More and more, the issues and dangers we face have a scientific basis and a potential technological solution, such as climate

Jane Wales is passionate about the need for STEM- educated women to serve in policy positions.

change and infectious diseases."

Wales, who grew up discussing international issues at dinner at the behest of her journalist parents, studied literature and political science, but she quickly recognized the brilliance of then-newcomers Gottemoeller, as well as Michele Flournoy, the Defense Department's undersecretary for policy and one of the highest-ranking women ever at the Pentagon; and Kerri-Ann Jones, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs.

"They were clearly real talents the minute they started their careers," Wales said, adding that such role models exemplify the marvelous opportunities open to women with STEM backgrounds.

— By Sandra Guy, SWE Contributor